

CONDITION OF APPROVAL (October 15, 2007)

Zoning Modification

1. The proposed telecommunication facility shall be developed in substantial conformance with the Plat, consisting of 1 sheet, dated August 15, 2006 and revised through September 5, 2007 prepared by Morris & Ritchie Associates, Inc. and the Loudoun County Zoning Ordinance. Approval of this application does not relieve the Applicant of any Zoning Ordinance, Codified Ordinance, or any other regulatory requirement.

FINDINGS (October 15, 2007)

Commission Permit

1. The proposed project is in conformance with the location policies of the Revised General Plan and the Strategic Land Use Plan for Telecommunications Facilities, which identify a water tank as a preferred location and recommend that new commercial public telecommunication antennas be located on existing tall structures subject to performance standards to mitigate visual impacts.
2. The proposed project is in substantial accordance with the character and extent policies of the Revised General Plan and the Strategic Land Use Plan for Telecommunications Facilities and will not create an unnecessary visual impact on nearby properties or Harry Byrd Highway (Route 7) provided that the telecommunication facility is constructed as proposed and the Type 4 Buffer is installed and maintained as proposed.

Zoning Modification

1. The proposed Zoning Modification, as conditioned, serves public purposes to a degree that is equivalent to the applicable general zoning regulations regarding height, setback, and non-conforming structures.
2. The proposed Zoning Modification, as conditioned, is consistent with the applicable policies of the Revised General Plan.
3. Subject to the zoning modification, the application complies with the applicable requirements of the 1972 Zoning Ordinance.



**LOUDOUN COUNTY, VA
TECHNICAL REVIEW**

**PROPOSED
CO-LOCATION
by
VERIZON WIRELESS
ON
145' TOWN OF ROUND HILL WATER TANK**

**CMPT 2007-0012
ZMOD 2007-0010
SPEX 2007-0019**

Submitted by:

ATLANTIC TECHNOLOGY CONSULTANTS, INC.

A Member of The Atlantic Group of Companies

ATC PROJECT #: 1025-11

November 2, 2007



THE ATLANTIC GROUP
OF COMPANIES, INC.

EXECUTIVE SUMMARY:

Washington DC SMSA d/b/a Verizon Wireless ("Verizon") of Annapolis Junction, Maryland has submitted an application to Loudoun County requesting a Special Exception, Zoning Modification and Commission Permit to co-locate on an existing 145' single pedestal sphere water tank owned by the Town of Round Hill located east of the Round Hill Elementary School on the east side of Evening Star Drive, approximately one half mile north of Harry Byrd highway (Route 7) at 17144 Evening Star Drive, Round Hill, Virginia.

Verizon Wireless is a FCC licensed telecommunications provider authorized and mandated to provide wireless communications services to the Loudoun County area. Verizon is proposing to install an 8-foot vertical mast with twelve (12) panel antennas on the top of an existing 145-foot water tank thereby increasing the overall height of the structure to approximately 155-foot. The Applicant is proposing the co-location to support service delivery in an area of verifiable lack of coverage in and surrounding the Town of Round Hill.

This report outlines the specific areas of evaluation with respect to this proposal, and this consultant's recommendations regarding Application package as presented. Supporting and clarifying evidence regarding the suitability of the proposed design in meeting the specified coverage goals is also included.

In general, it is the opinion of this consultant that this application conforms to all Federal, State, and County regulations regarding the construction of telecommunications support structures, represents a sound design, and should be considered for approval contingent upon the criteria noted in Section 3.0 "Recommendations" of this document.

George N. Condyles IV

George N. Condyles, IV
President and COO
Atlantic Technology Consultants, Inc.

1.0 TECHNICAL:

1.1 Siting

The existing 145-foot single pedestal sphere water tank is located on a 0.93-acre parcel owned by the Town of Round Hill. The property is zoned PD-H3 (Planned Development-Housing 3) and located on Tax Map 34 ((30)) Parcel 1-A (Pin# 554-26-6077). The proposed site, located east of the Round Hill Elementary School on the east side of Evening Star Drive, approximately one half mile north of Harry Byrd highway (Route 7), can be accessed from Evening Star Drive and is physically located at coordinates N 39° 08' 40.95" and W 77° 45' 38.28" at a ground elevation of 591-feet.

Verizon is proposing to install an 8-foot pod extension to the top of the existing 145-foot water tank and attaching a twelve (12) panel antenna array to the pod. Six (6) antenna panels will measure 47.4" x 4.1" x 5.9" (L x W x D) and six (6) antenna panels will measure 94.5" x 5.5" x 13.2". In addition, an unmanned equipment shelter measuring approximately 12' x 30' x 10' taking up approximately 360 square feet is being proposed. The proposed coax feedline cable would be routed down the interior access tube located inside of the water tank.

Setback:

The Applicant has submitted a Zoning Modification of Article 520.4.1 of the 1972 Ordinance to increase the height of the existing non-conforming water tank to accommodate the proposed mast and antennas. The existing water tank is non-conforming because it exceeds its setback from the property lines by a distance that is equal to the height of the structure (Subject to 1972 Zoning Ordinance), 145-feet. The County approved a subdivision waiver (SBWV 2004-0005) on May 27, 2005 that resulted in the water tank being in violation of the required 145' setback from all property lines (front setback: 113'; rear: 22'; sides: 61'; and 66'), thereby making the water tank a non-conforming structure. The addition of the pod and antennas would increase the total of the structure to 155', thus increasing the degree of non-conformity, which violates Article 804.a of the 1972 Ordinance.

Geotechnical:

Not required

Landscape Buffer:

According to the County Staff Report for the Planning Commission Public Hearing dated October 15, 2007 on page 11, paragraph 2:

"A landscape buffer is currently in place around the perimeter of the site to screen views of the lower portion of the water tank and associated ground equipment. The existing buffer consists of a 6-foot tall chain link fence and a mix of evergreen and deciduous canopy trees, understory trees, and shrubs. The Applicant proposes to supplement the existing buffer with 24 evergreen trees and 8 understory trees and to replace the chain link fence with a green slatted fence to achieve 95 percent opacity. The presence of the Round Hill HOA park area and the existing wooded area to the east of the site, beyond the HOA park area will also help minimize the larger visual impact of the proposed facility on the surrounding area."

Co-Location:

Co-location is preferable to construction of a new site, with such co-location minimizing visual impact of telecommunications equipment on the surrounding area. The nearest existing potential co-location structure already supporting one co-location, Cellular One, is the Purcellville Water Tank located approximately 4 miles east of the Round Hill Water Tank.

In their search for potential candidates for co-location Verizon chose the Round Hill Water Tank, because "The other alternatives were not acceptable because they either did not have an existing structure with the height necessary for signal propagation or would require the construction of a new tower or monopole."

The proposed pod mount will be designed to be extended up to a maximum height extension of 25' above the top of the water tank to allow additional co-location. A structural analysis on the water tank was performed to determine if the water tower can structurally support Verizon's proposed antennas and associated appurtenances, as well as, three (3) additional future co-locations around the belly of the tank. To secure the antennas and cables, welding is the design engineers choice and therefore will require the tank to be drained. In addition, the cables will have to be mounted outside of the tank. The cables will be located in a cable tray attached to the side of the tank. These cables are black in color, and can be painted, but because of freeze/thaw, keeping paint on them will be difficult. See next section of this document, 1.2 "Structural".

1.2 Structural

A Water Tank Structural Analysis dated March 12, 2007 was performed by Morris & Ritchie Associates, Inc. (MRA) and signed/sealed by a professional engineer licensed in the Commonwealth of Virginia. As mentioned in the previous section of this document, the purpose of the structural analysis was to determine if the water tower can structurally support Verizon's proposed antennas and associated appurtenances, as well as, three (3) additional future co-locations. MRA's "...analysis evaluated the tower under the following conditions:

IBC 2003- 90 mph Wind Force + No Ice (3 second gust)
IBC 2003- 90 mph Wind Force + ½ " Ice (3 second gust)
(w/ 25% reduction wind load = 78 mph wind speed)
(Wind direction factors +/- Normal, 60 and 90 degrees to face of the structure)".

MRA concluded that the water tank could structurally accommodate the addition of Verizon's pod mount, antennas, and associated appurtenances, as well as, three (3) additional similar co-locations.

However, there are logistical problems to adding this many co-locations to the water tank as follows (See County Staff Report for Planning Commission Public Hearing dated October 15, 2007, page A-28/A-29):

- "One (1) of the carriers will have to mount directly to the top of the tank. In order to install antennas directly to the tank, mounts will need to be welded directly to the tank which in turn could cause damage to the interior coating of the tank as well as the exterior coating. Also, the tank will need to be emptied while any welding is in progress to insure that the water in the tank is not contaminated by the welding and any necessary repairs to the tank can be completed.
- Because of OSHA regulations for minimum clearness for access, the coaxial cable cannot be stacked in the access tube. With Verizon Wireless' coaxial cable being run through the access tube, it will be possible to run one (1) additional carrier's coaxial cable through the access tube. The coaxial cable for additional carriers must be run on the outside of the tank, but that will also require welding to the tank..."
- In order for a future carrier to run coaxial cables up the access tank, additional penetrations must be made at the base of the tank, and at each platform. Verizon Wireless is showing their coaxial cable coming through the top of the doorway.
- Four (4) carriers, and two (2) sets of coax running up the exterior of the tank will increase the visual impact of the tank..."

Furthermore, in conformance with County ordinance, work at this site will remain in compliance with ALL federal, state, and local building codes and regulations if work proceeds as outlined in the application.

1.3 RF Exposure

FCC bulletin OET-65 provides guidance for a licensee proposing to construct a telecommunications support structure in calculation of RF exposure limitations, including analysis of the cumulative effect of all transmitters on the structure. Appropriate steps, including warning signage at the site, must be taken to protect both the general public and site workers from unsafe RF exposure in accordance with federal guidelines.

Documentation of an RF exposure study is NOT included with this application; therefore it is assumed that this study has not been performed. Although this Consultant sees no evidence of unsafe RF exposure levels being generated at this site if co-location were to proceed as proposed, a certified RF Analysis Report is recommended.

In addition, a procedure with contact names and numbers shall be prepared for situations that may require the antennas to be turned off for maintenance on the tower, etc.

RF site exposure warning signage placement shall be appropriately planned for this site.

1.4 Grounding

Grounding of all structures and equipment at an RF site is critically important to the safety of both personnel and equipment at the site. Even a single component not meeting this standard places all other site components at risk for substantial damage. All structures and equipment at the site should maintain a ground potential difference of less than 5 ohms.

A grounding plan was NOT submitted with this Application.

1.5 General Safety

The existing 0.93-acre parcel is surrounded by a 6-foot tall chain link fence. As previously mentioned in Section 1.1 Siting, "Landscape Buffer", as per the County, the Applicant proposes to replace the chain link fence with a green slatted fence. The material and height of the green slatted fence is unknown. This Consultant recommends a 6-foot tall (minimum) wood fence. A suitable security fence will prevent unauthorized access to the tower and ground equipment.

Additional safety measures to be placed at this site include RF exposure warning signage, site identification information, and routine and emergency contact information and FCC Registration number.

The Permit Plans should include the installation of an OSHA-approved style of fall prevention cable.

1.6 Interference

An interference study, taking into account all proximally located transmitters and receivers known to be active in the area are advisable prior to any co-location construction. A full interference study has not been included with the Applicant's design, and therefore it is assumed that such a study has not been performed.

While it remains technically prudent and advisable to complete this study for any co-location construction, practically speaking this consultant sees no evidence of interference by or with this site after a general evaluation of the surrounding transmitter sites.

Should any interference issues be posed with respect to this site, mitigation would nevertheless remain the responsibility of the co-locator and affected carrier(s), and would be regulated by the Federal Communication Commission, having no effect or burden on the County.

2.0 PROCEDURAL

2.1 FAA Study

An initial search was performed by this consultant via TOWAIR Determination under the ASR online system on the FCC website to determine if registration is required. The TOWAIR determination results were as follows:

"Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided."

2.2 FCC Antenna Site Registration

This site does not yet have, nor is it required to have, an antenna site registration number. For both routine and emergency identification purposes, however, it is recommended that this site be registered with the Federal Communication Commission. All registered sites should have their registration number conspicuously displayed at the site which is normally on the security fence surrounding the compound area.

2.3 Environmental Impacts

The National Environmental Policy Act of 1969 (NEPA), delineated in Title 47 of the Code of Federal Regulations, Part 1, Subpart I, sections 1.1301-1.1319, requires federal agencies to incorporate environmental considerations into their decision-making process when evaluating new construction proposals. As a licensing agency, the Federal Communication Commission (FCC) requires all licensees to consider the potential environmental effects from their construction of antenna support structures, and to disclose those effects in an Environmental Assessment (EA) that must be filed with the FCC for review.

A NEPA Phase I Report should include the following items:

- NEPA Checklist
- NEPA Summary Report
- Associated documentation
 - Figures, Drawings, Maps
 - Tribal Correspondence
 - Land Resources Map and FEMA Floodplain Map
 - SHPO Correspondence (See next Section 2.4 "Historic Impacts")
 - Department of Game and Inland Fisheries Response
 - Department of Conservation and Recreation Response

The NEPA Phase I Assessment is a report that is submitted to the FCC only if requested by the FCC. Otherwise, it shall be reviewed by the appropriate locality for which the proposed tower site is being considered for approval.

A NEPA Phase I Report is not required for this Application.

2.4 Historic Impacts

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires that State Historic Preservation Offices (SHPO) and the President's Advisory Council on Historic Preservation be given a reasonable opportunity to comment on all undertakings with the potential to affect historic properties. The licensee is required to submit to the SHPO a detailed description of the project, a listing of local historic resources, and a discussion of any measures being undertaken to mitigate impacts (if any) on historic resources. Upon receipt, the SHPO has thirty (30) days to review and respond to those submissions. All agencies with authority to permit construction are required to consider the SHPO response in its decision making process with respect to new construction applications.

Upon review of the Nationwide Programmatic Agreement for the Collocation of Wireless Antennas, V. Collocation of Antennas on Buildings and Non-Tower Structures Outside of Historic Districts, it appears that Verizon's proposed co-location on the existing Round Hill Water Tank is exempt from the consultation process.

2.5 Supporting Documentation

Verizon did include documentation supporting the co-location of their antennas on the water tank in the form of propagation mapping.

An independent RF analysis has been performed by this consultant, with a coverage map appended to this report, verifying that the applicant will be able to meet their stated coverage objectives to provide the wireless coverage necessary to alleviate the lack of coverage encountered in this area.

Supporting documentation in the form of photo-simulation was submitted with the Application. This Consultant believes the photo-sims are an accurate representation of the water tower with the 8-foot pod mount and 12-panel antenna array atop from various locations surrounding the proposed site.

2.6 Logistical Issues

- Setback – Each time there is a request that proposes increasing the height of the water tower structure such as Verizon's proposal, it requires a Zoning Modification Request. The Round Hill Water Tank is currently labeled a non-conforming structure and any increase in height would increase its degree of non-conformity.
- Structural – Any co-locations beyond two (2) could not run their coaxial cable down the interior access tube. It would have to be run on the exterior of the water tank, thus increasing the visual impact. In addition, any co-locations beyond two (2) would require the mounts and the cable to be welded directly to the tank, thereby increasing the risk for damage to the interior and exterior coating of the tank and requiring the tank to be emptied while welding is performed.
- Co-location Lease – The Town of Round Hill will only sign a four (4) year and eleven (11) month lease, which is a very short lease term that is virtually unheard of in the industry. This lease term would significantly diminish any carrier's desires to co-locate on the water tank.

3.0 RECOMMENDATIONS

This application represents an appreciable intent on the part of the Applicant to conform to all applicable federal, state, and local regulations, accepted industry practices, and specific County ordinances regarding construction of new telecommunications towers. It is therefore the recommendation of this Consultant that the County consider the Applicant's proposal contingent upon the following criteria being submitted for review prior to final approval:

- Grounding specifications;
- Fence detail;
- Certified RF Analysis Report;
- A procedure with contact names and numbers are submitted for situations that may require the antennas to be turned off for maintenance on the tower

As previously mentioned zoning modification approval is required for overall approval of the application.

In addition, due to potential structural damage and visual impact issues, it is the opinion of this Consultant that Loudoun County only gives consideration to two (2) co-locations total for the Round Hill Water Tank. In other words, if Verizon's proposal to co-locate on the water tank is approved, then only one (1) more (future) co-location application should be considered.

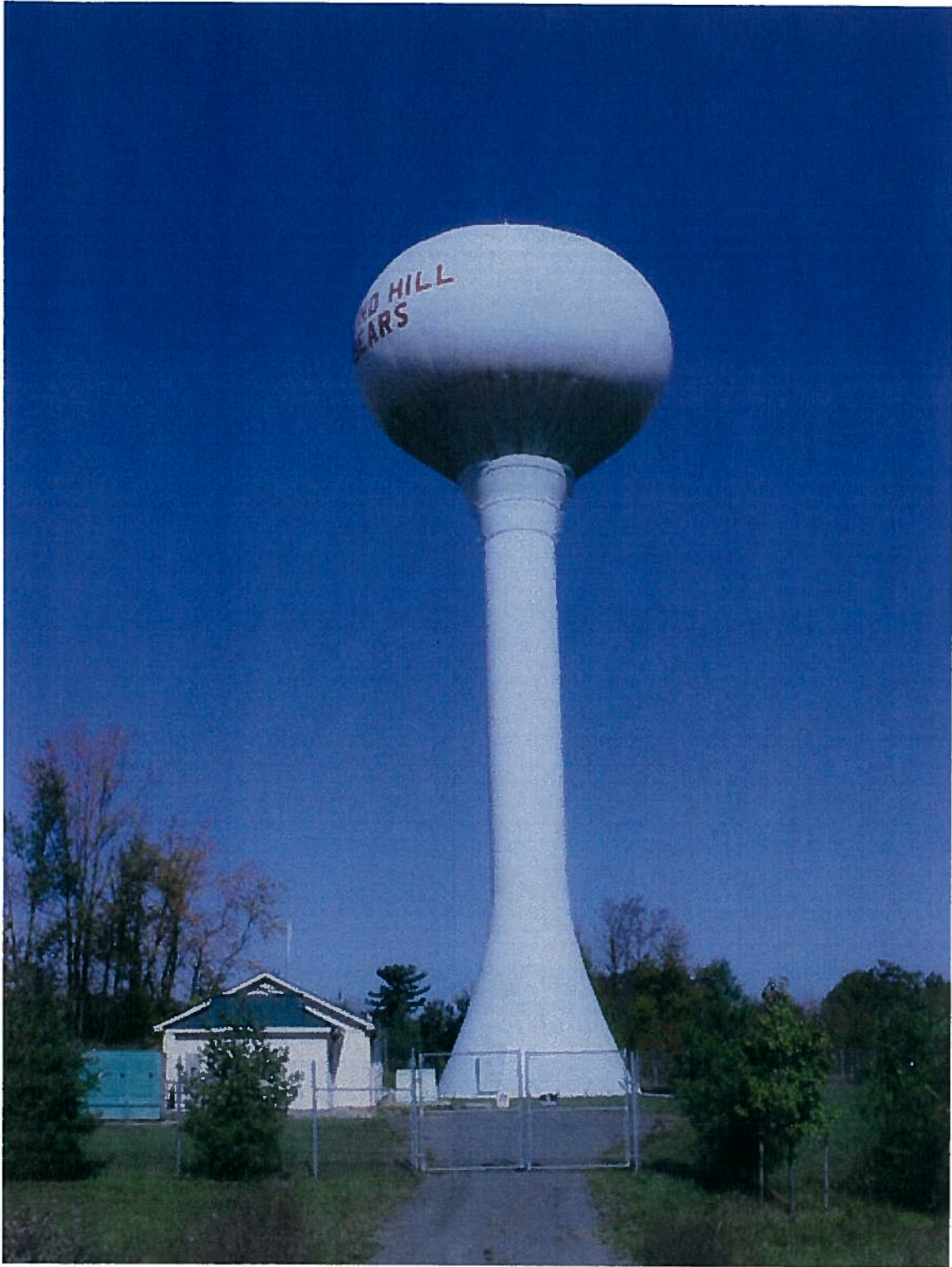
Review the picture titled "Blacksburg Water Tank". This view should be taken into consideration if more than the two co-locators on the top.

In closing, this consultant remains available to address any comments or questions which may arise after review of this report. Any interested party with such comments or questions may feel free to contact this firm, which remains committed to delivering independent, objective, unbiased, and thorough consulting services.

Respectfully submitted,



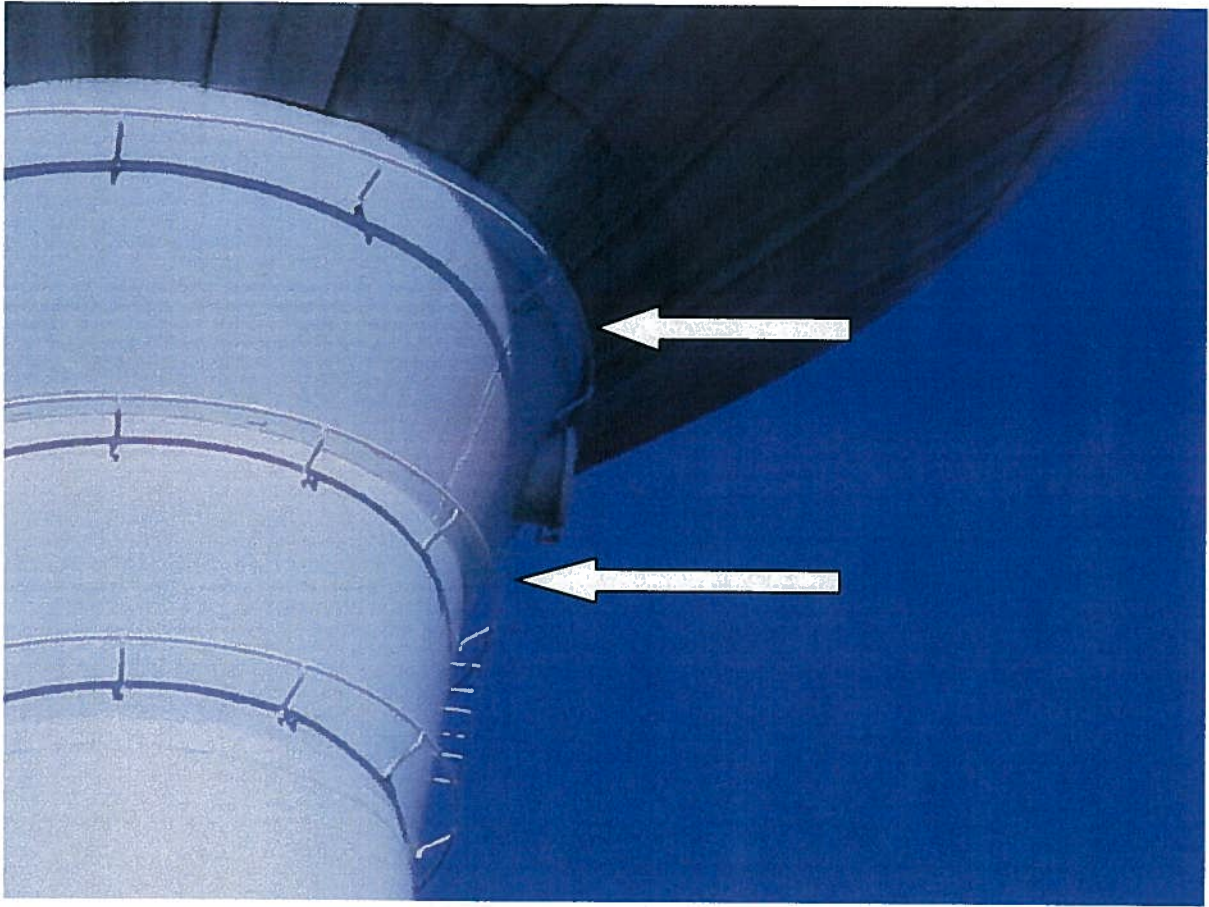
George N. Condyles, IV
President & COO



Round Hill Water Tank and Compound



**Proposed Location of Verizon Mask Extension
Approximate AGL of 155'**

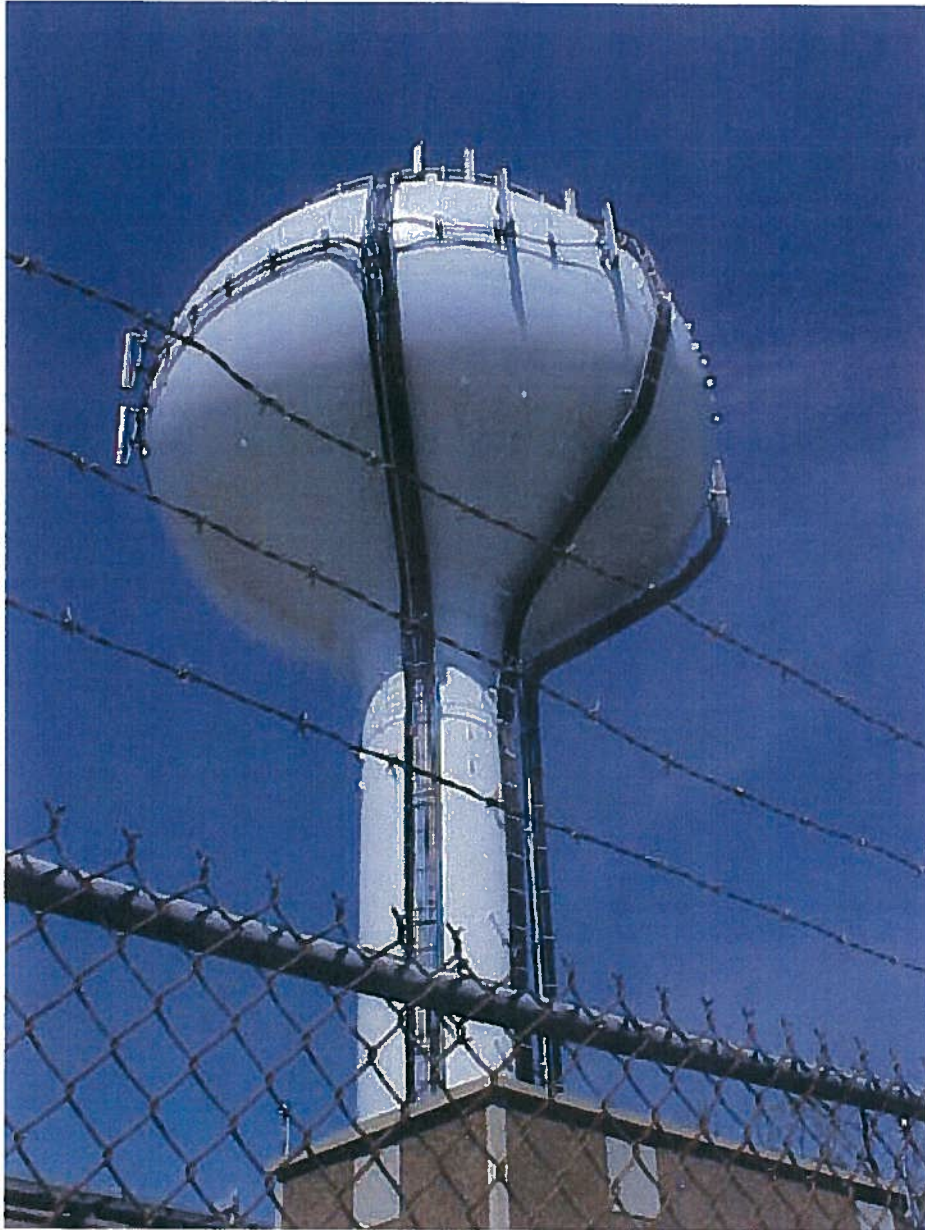


Antenna Mounting Rings around “Belly” of the tank.



Water Tank with proximity to school

Blacksburg Water Tank



Similar designed water tank on North Main Street in Blacksburg Virginia

Notice multiple 2" cables for co-locators for exterior Mounting.

**Cables can be painted, but becomes a continuing maintenance problem. Notice
Blue paint that chipped off due to freeze/thaw action.**



View from neighborhood



View from neighborhood



Antenna Structure Registration

[FCC](#) > [WTB](#) > [ASR](#) > [Online Systems](#) > TOWAIR[FCC Site Map](#)

TOWAIR Determination Results

[HELP](#)[New Search](#) [Printable Page](#)

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates

Latitude	39-08-40.9 north
Longitude	077-45-38.3 west

Measurements (Meters)

Overall Structure Height (AGL)	47.2
Support Structure Height (AGL)	44.2
Site Elevation (AMSL)	180.1

Structure Type

TOWER - Free standing or Guyed Structure used for Communications Purposes

Tower Construction Notification

Notify Tribes and Historic Preservation Officers of your plans to build a tower.

Note: Notification does NOT replace [Section 106 Consultation](#).

ASR Help

[ASR License Glossary](#) - [FAQ](#) - [Online Help](#) - [Documentation](#) - [Technical Support](#)

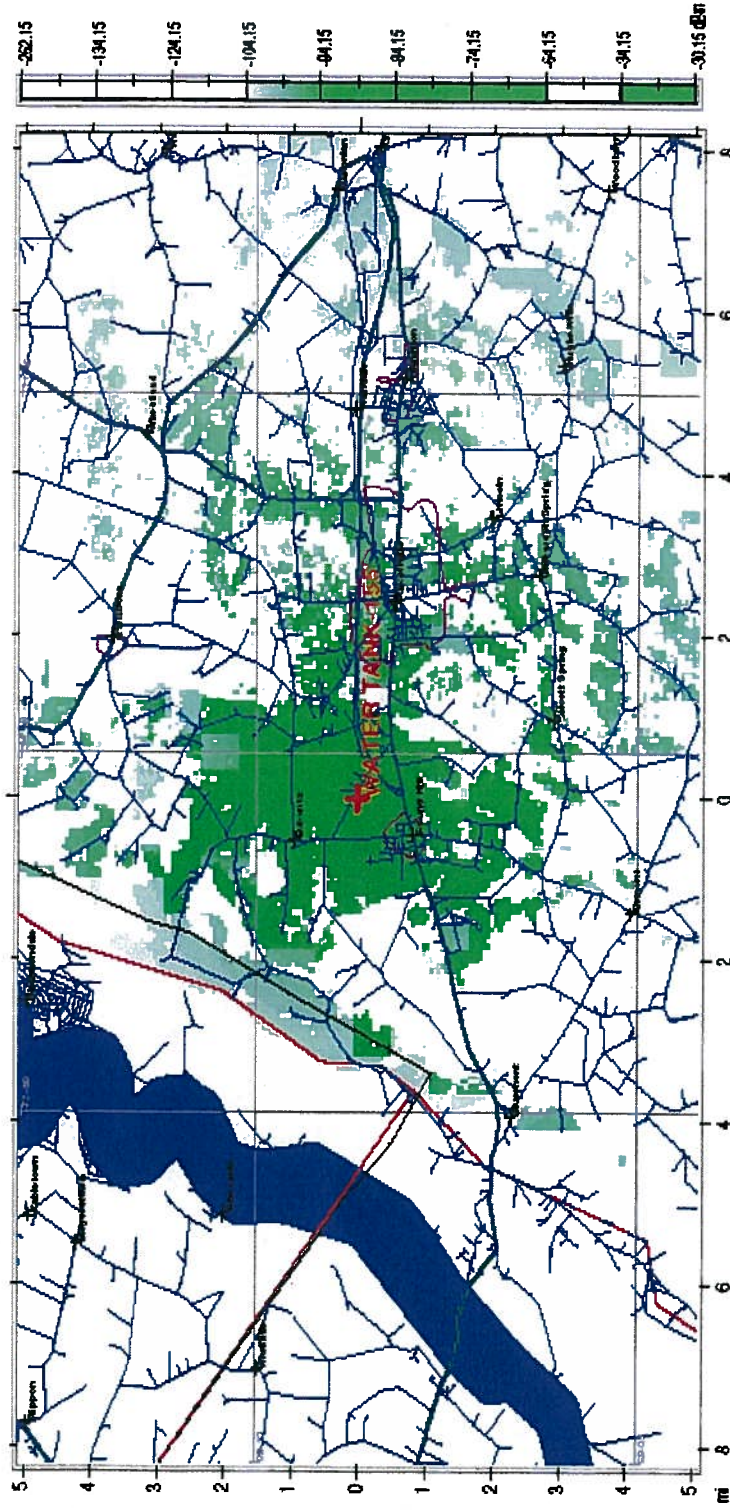
ASR Online Systems

[TOWAIR](#) - [CORES](#) - [ASR Online Filing](#) - [Application Search](#) - [Registration Search](#)

About ASR

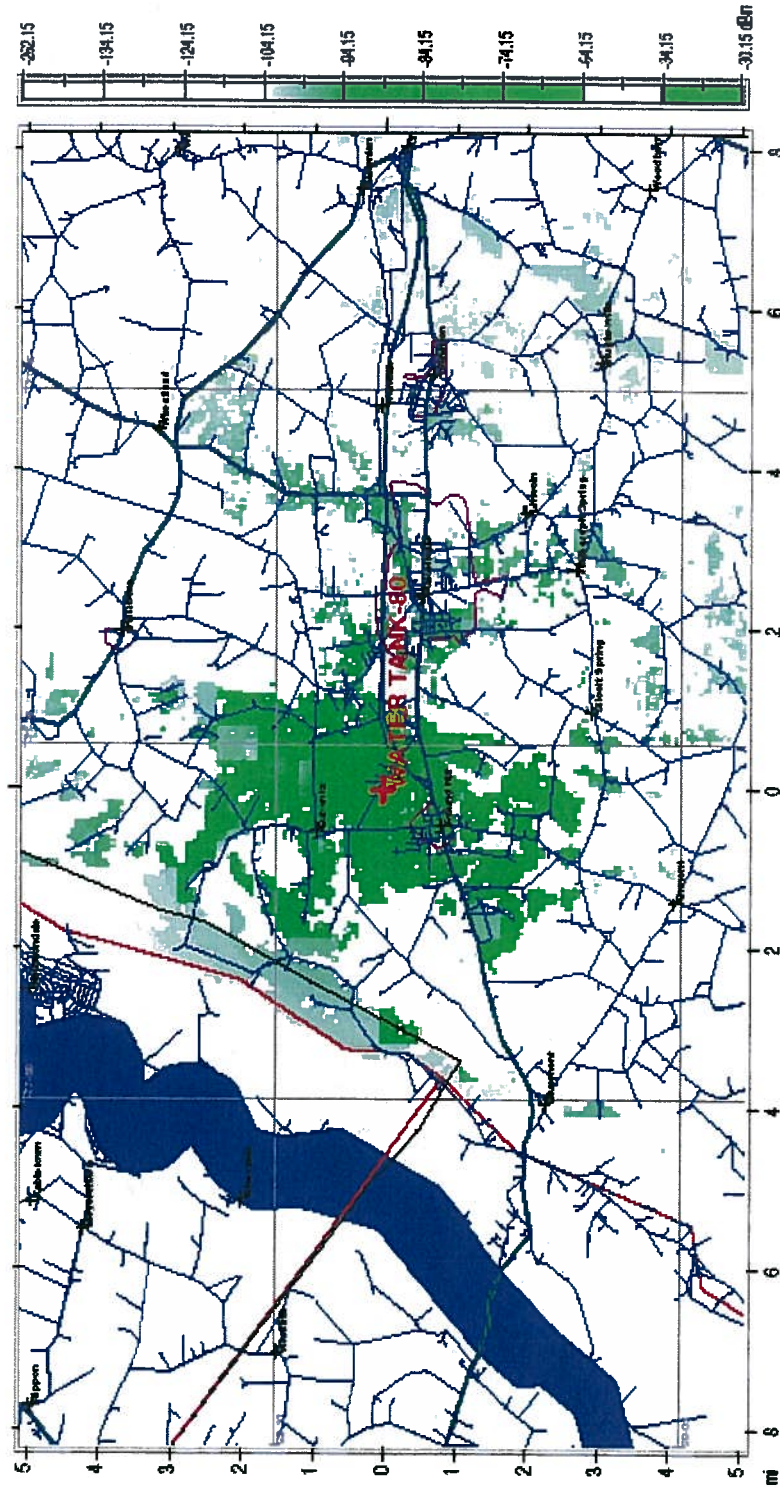
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ROUND HILL, LOUDOUN COUNTY, VIRGINIA



WATER TANK - 155

ROUND HILL, LOUDOUN COUNTY, VIRGINIA



WATER TANK - 80'

From: Frank Etro [mailto:frank.etro@hok.com]
Sent: Monday, October 29, 2007 12:15 PM
To: council@roundhillva.org
Cc: Rob Kinsley
Subject: FW: Planning Commission Work Shop

I will not be able to attend the County Planning Commission Workshop this evening in regard to the communication antennas in Round Hill and the rest of the County.

Below is a message that I sent on to Nancy Hsu (Blue Ridge Planning Commissioner) outlining comments for their consideration.

From: mayor@roundhillva.org [mailto:mayor@roundhillva.org]
Sent: Monday, October 29, 2007 11:33 AM
To: nhsu01@msn.com
Subject: Planning Commission Work Shop

Nancy:

I was planning to attend the Planning Commission Work Shop this evening; however, due to scheduling conflicts I now find that I am not able to.

In regard to the two telecommunication applications that are in front of you this evening, I have taken the liberty to list some of the points that I would have liked to have made, if I was given the opportunity. Some of these thoughts are a result of comments made in your public hearing two weeks ago, others are based upon past discussions of the Town Council in regard to this subject.

1. During the public hearing there was mention of some strange permitting process if any for the elevated water storage tank and that it "appeared overnight". The construction of the elevated water tower was a result of a proffered rezoning (ZMAP89-004 1972 Zoning Ordinance) in which there were numerous water and wastewater proffers. The subject of the elevated water storage tank was one of the points of focus of a \$40,000,000 claim against the Town placed by the developer of the Villages which was settled through a Consent Decree in August of 2000. As I recall, the County Zoning Administrator determined that the location and the construction of the elevated water tower was a part of the rezoning and did not require a commission permit or additional public hearings.
2. In addition to the water utility requirements, the Town has designed and constructed the water tank to include the capabilities for co-location of communication antennas. At the time that this was done, we understood that the direction and policy of the County would be to locate such communication facilities upon such structures.
3. When designing/constructing and leasing these facilities we have spent Town resources (fees and man hours) with the assumption that there would be monetary returns that would help offset

general funds and utility funds to helping to reduce a financial burden to the Town Citizens and Utility Costumers over the life of those leases.

4. We currently have a renewable lease with Verizon for 4 years 11 months with a fixed escalation for the renewal of the lease; this type of lease is common among municipalities in Virginia due to procurement procedures. There is no intention not to renew the lease unless "housekeeping" type issues between the parties can not be corrected.

5. The Town anticipated a second provider to place an antenna on top the Verizon antenna; however, at this time no provider has "seriously" approached the Town.

6. For a number of years the Town was in negotiations with a different provider; however, as many players came and went and the need for this provider to place an antenna was hot and cold, the negotiations were stretched out over a long period of time eventually they fell off primarily to what appeared to be a lack of their understanding of the Commonwealth procurement codes and working with a municipality.

7. The tower is designed structurally to handle additional providers at lower elevations. The cable delivery to these lower antennas can not be within the towers stem as the stair cage would become impassable for routine maintenance. Reports by others have indicated that the only means would be to weld to the vessel or stem depending upon the elevation. Those reports further indicated that this would not be advisable due to the need to empty the tank. In response to this claim, and if additional space is needed, through a coordinated effort between the installing contractor and the Town the tank can be emptied in order to allow that type of installation if need be. It is also understood that there other methods of attaching to the structure besides welding that can used as well as methods to conceal the cable.

8. The Town is currently securing permits to construct a replacement ground water storage tank on the mountain/hill side just north and west of Town. The elevation of this tank will be approximately the same as our existing elevated water tank in order to maintain the hydraulics of our water pressure zone. Being that it is a ground storage tank it will not be as visible to the area residence and may offer additional antenna locations if they are needed in the future.

9. Based upon many uninformed drive through of the metropolitan area, we would question the immediate need for 9 to10 different sets of antennas in the vicinity of the elevated water tank as currently there are none.

10. There were discussions with Verizon in the past in regard to locating a monopole (the structure was to look like a very large evergreen tree) on Town property which also contains a ground water storage tank. There was a considerable outcry against by individual homeowners and the HOA of the Stoneleigh neighborhood. The Town did not wish to pursue discussion with a provider in regard to this location for a number of reasons:

- * The elevated water storage tank was available for a provider.
- * The Town was in the process of designing a second ground water

storage facility at that location.

* The Town was of the opinion that based upon the additional landscaping requirements that the County was requiring for a buffer to this proposed tank, the need to add a pumping station facility at this location as well as the topography; there would not be room for a monopole facility.

* There appeared to be legal language in the deed for the land in which the Town received through the development of the Stoneleigh neighborhood that would preclude the use of the site for anything but water utilities.

10. In the past members of the public (not many, nor has there been an outcry) have basically stated that there needs to be better coverage in the Round Hill Area. Those statements have primarily been in the form of verbal complaints and most have been made in passing (as is very common in Round Hill at school functions, events, in the stores or just in the street; very rarely will someone speak out in a public forum unless they are very angry). If there were comment received in a public meeting it was for the need for better coverage, against monopolies and when there was discussion in regard to the elevated tank appearance of the antenna and wire management as well as a red blinking light was an issue. Naturally there were at times opposite opinions were presented that the services were not needed, or there were health concerns.

11. In regard to 911 service; again during the design of the elevated water tower we provided locations for the County to install the appropriate antenna, we have had discussions with Verizon and they have identified that locations exist on the top for 911 antenna. At this writing I was left with the impression that Verizon may pull the necessary cable and install the county supplied antenna at the time of their installation.

12. In regard to the monopole application and some observations:

* It is noted that the Villages HOA is presently controlled by the developer of those properties not the individual home owners; who were people who expressed concern about the appearance of antennas on top of the elevated tank.

* As we have had many "negotiations" with the developer in regard to deeds and easement in the past, we are concerned that saying one has discussed an easement and having a letter of understanding is not the same as having a recorded easement. It is noted that this easement will be through the proffered HOA Park

* At this writing we are of the opinion that the easement to our elevated water tank site which is assumed to be the same the easement that the applicant is referring to may have conditions that may require the Towns involvement.

* Will this access easement also provide power and communication easements?

- * Will all power and communications be underground as per the proffer requirements of that development?
- * Will there be emergency power generation at these facilities requiring diesel fuel delivery?
- * Will the land being provided in this application be able to house the equipment structures for the providers on the tower?
- * Will the land need to be cleared of existing trees to accommodate the monopole and support facilities?
- * Will the tree save areas be compromised in order to access and construct the monopole and its facilities.
- * Will the topography of this site allow these facilities to be built with little if any disturbance?
- * Will the money generated through the lease of these facilities provide financial relief to the public over the existence of the facility?
- * As of this writing (Monday October 29, 2007) the Town did receive formal notification of the past public hearing as required by ordinance.
- * The Town was not made aware of any community meetings or discussions in regard to this application.
- * Since the public hearing for this application the Town or the mayor has not been contacted by the applicant to discuss their application further.
- * There has not been any presentation made to the Town Council in regard to this application at any time.
- * The Town is concerned that from a visual perspective it seems odd to have two tall structures with in hundreds of feet of each other.
- * The Town is more than happy to discuss co-location with the individual communication companies, the lease would be the same for all providers as is with Verizon.

If you should have any other questions, please let me know. Thanks you for the opportunity to point these items out.

Frank

Mayor, Town of Round Hill

Citizens v Cell Tower Options for Round Hill

Teresa Yancey Crane
Tippitt's Hill
36024 Bell Road
Round Hill, Virginia 20141

Presentation to Loudoun County Planning Commission, 15 October 2007

The community is not a pin cushion

- What is the public purpose of this tower that is not available elsewhere?

Presentation to Loudoun County Planning Commission, 15 October 2007

The community losses are significant

- Eye sore and pollutes view shed
- Historic building (circa 1726) affected
- Controversy surrounding water tower
- Security risk and possible terrorist target
- Unknown long-term health effects
- Contributes to Colony Collapse Disorder?
- ...and where exactly IS the site?

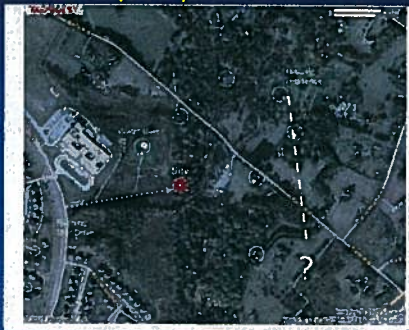
Presentation to Loudoun County Planning Commission, 15 October 2007

Photo from p. 28 of CW application



Presentation to Loudoun County Planning Commission, 15 October 2007

View line per photo



Presentation to Loudoun County Planning Commission, 15 October 2007

That and other inaccuracies call into question the veracity of the entire application

- P. 3 Attachment 8 "Dovetail recommended **all three** sites to be not-eligible for NRHP"
- P. 14 Date for Tippitt's Hill is not 1830
- P. 22 indicates circa 1730s

Presentation to Loudoun County Planning Commission, 15 October 2007

Long-term effects unknown

"There is an increasing body of evidence linking the radio frequency radiation emitted from cell phone towers to serious health effects, including cancers and childhood leukemia."

"It is impossible at this time to feel comfortable knowing a cell phone tower is located near an elementary school...."

Presentation to Loudoun County Planning Commission, 15 October 2007

Round Hill Elementary School



Presentation to Loudoun County Planning Commission, 15 October 2007

Proposed sites are on low ground



Presentation to Loudoun County Planning Commission, 15 October 2007

Option: Abandoned silos



Presentation to Loudoun County Planning Commission, 15 October 2007

Option: Silo at Deere Nursery



Presentation to Loudoun County Planning Commission, 15 October 2007

Option: Franklin Park



Presentation to Loudoun County Planning Commission, 15 October 2007

Frank W. Stearns

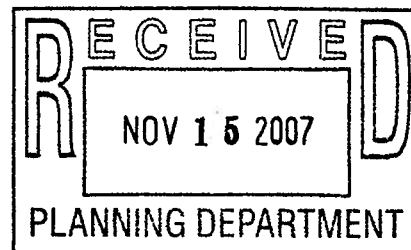
(703) 760-1956

fwstearns@venable.com

November 15, 2007

VIA HAND DELIVERY

Judi Birkitt
Project Manager
County of Loudoun, Department of Planning
1 Harrison Street, S.E. 3rd Floor
Leesburg, Virginia 20177



Re: Verizon Wireless ("Applicant") SPEX 2007-0019, ZMOD 2007-0010 CMPT 2007-0012

Dear Judi,

Thank you for forwarding to the undersigned the Atlantic Technology Consultants, ("ATC") report of November 2, 2007 concerning the above referenced matter. Page ten thereof requests additional information on four (4) specific issues. This letter is to provide that additional information.

Grounding specifications are attached hereto as Tab 1 and are self-explanatory.

The fence detail request is somewhat confusing to Applicant in that ACT, for security reasons, is proposing that Applicant replace the chain link fence around the perimeter of the entire Town of Round Hill water tank facility with a six-foot high wooden fence. The Applicant proposed, and was under the impression that Loudoun County Staff agreed, that the existing security fence could be supplemented with green slats to provide additional screening and the existing vegetation would be supplemented to meet the Type IV Buffer requirements of the Loudoun County Zoning Code. Applicant still believes that this is a better approach for security reasons than replacing the chain link fence with a wooden fence.

Attached hereto as Tab 2 is a certified radio frequency exposure analysis, prepared and sealed by Paul Dugan, P.E. a registered Professional Engineer along with Mr. Dugan's resume.

In regard to the procedure with contact names and numbers, please be aware that Applicant's lease with the Town of Round Hill requires Applicant to designate a telephone number to be called that is available 24-hours a day seven days a week to deal with any incidents that would require immediate attention. That number is 1-800-852-2671. Applicant will staff

Judi Birkitt
November 15, 2007
Page 2

this telephone number around the clock, everyday but not with one person whose name can be provided.

Should you have any questions regarding the above please feel free to contact the undersigned. This is to further confirm that this matter will again be before the Planning Commission on November 20, 2007 as soon as it can be reached after 6PM. I remain,

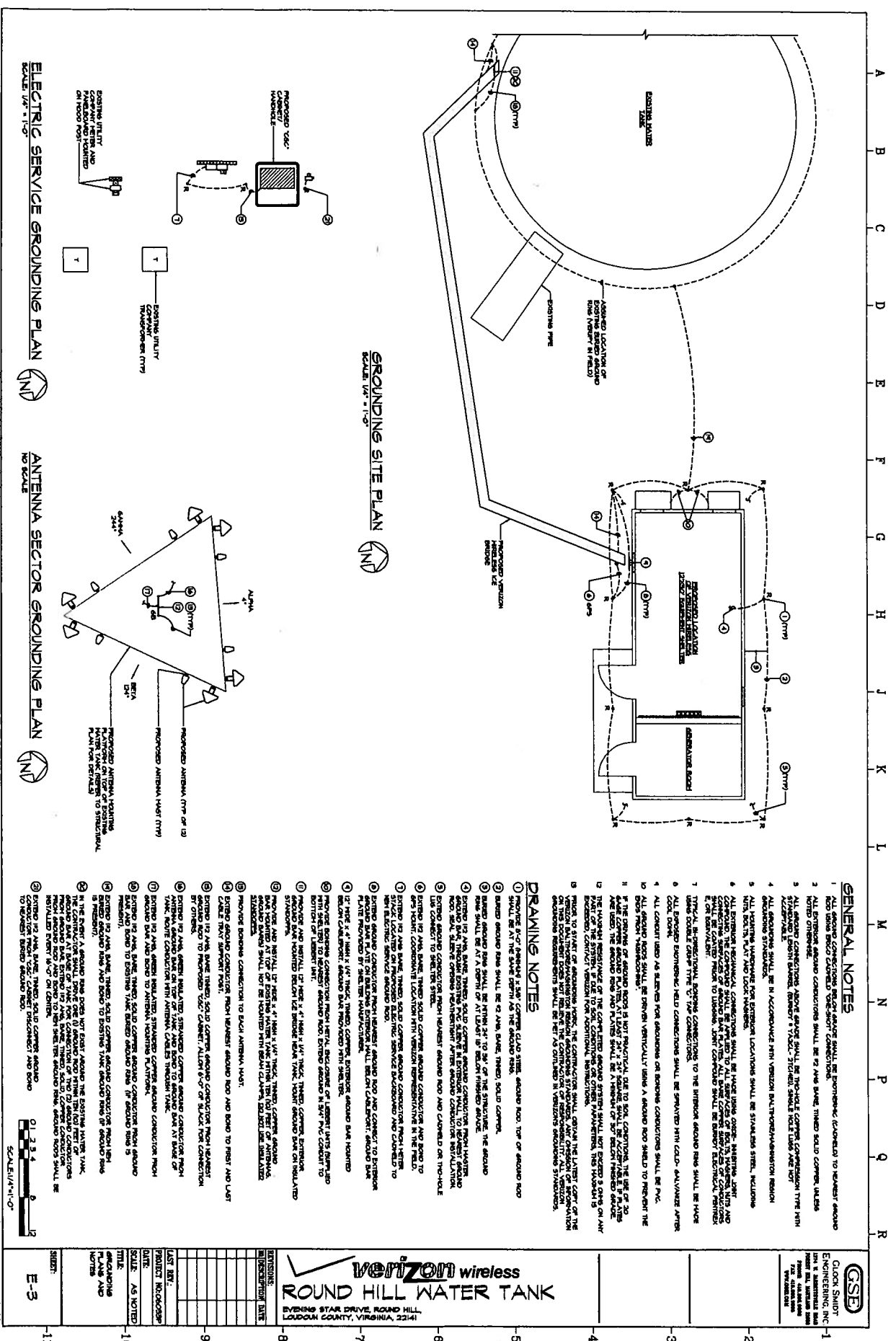
Very Truly Yours,



Frank W. Stearns

FWS/kkp
Enclosure
cc: Robert Posilkin (with enclosures)

A-29



GENERAL NOTES

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70B.
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11. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70B.

DRAWING NOTES

1. PROVIDE 1/2" MINIMUM THICKNESS 304 STAINLESS STEEL GRADED RISE, TOP OF GRADED RISE SHALL BE AT THE SAME ELEVATION AS THE GRADED RISE.
2. GRADED RISE SHALL BE 1/2" MINIMUM THICKNESS 304 STAINLESS STEEL.
3. GRADED RISE SHALL BE 1/2" MINIMUM THICKNESS 304 STAINLESS STEEL.
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9. GRADED RISE SHALL BE 1/2" MINIMUM THICKNESS 304 STAINLESS STEEL.
10. GRADED RISE SHALL BE 1/2" MINIMUM THICKNESS 304 STAINLESS STEEL.
11. GRADED RISE SHALL BE 1/2" MINIMUM THICKNESS 304 STAINLESS STEEL.

Verizon wireless

ROUND HILL WATER TANK

15000 STAR DRIVE, ROUND HILL, VIRGINIA, 22141

DATE: 12/10/10

SCALE: AS NOTED

REVISIONS:

NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	12/10/10
2	ISSUED FOR CONSTRUCTION	12/10/10
3	ISSUED FOR AS-BUILT	12/10/10

11

10

9

8

7

6

5

4

3

2

1

ENGINEER: [Signature]

DATE: 12/10/10

SCALE: AS NOTED

REVISIONS:

NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	12/10/10
2	ISSUED FOR CONSTRUCTION	12/10/10
3	ISSUED FOR AS-BUILT	12/10/10

11

10

9

8

7

6

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4

3

2

1

MILLENNIUM ENGINEERING, P.C.

303 Valley Hunt Drive
Phoenixville, Pennsylvania 19460

Office: 610-495-0690

Fax: 610-495-0691

www.millenniumengineering.net

Mobile: 610-220-3820

Email: pauldugan@comcast.net

November 14, 2007

Attn: Bob Posilkin, Consulting Manager for Real Estate and Zoning
Verizon Wireless
9000 Junction Drive
Annapolis Junction, MD 20701

Re: RF Safety FCC Compliance of Proposed Communications Facility
Site Name: Round Hill, Collocation on Existing 145' Watertank
17144 Evening Star Drive, Round Hill, VA 22141 (Loudoun County)

Dear Mr. Posilkin,

I have performed a complete analysis to provide an independent determination and certification that the proposed Verizon Wireless communications facility at the above referenced property will comply with Federal Communications Commission (FCC) exposure limits and guidelines for human exposure to radiofrequency electromagnetic fields (Code of Federal Regulation 47 CFR 1.1307 and 1.1310). As a registered professional engineer I am under the jurisdiction of the State Registration Boards in which I am licensed to hold paramount the safety, health, and welfare of the public and to issue all public statements in an objective and truthful manner.

The proposed communications facility consists of collocation on an existing 145' watertank. The proposed Verizon Wireless antenna configuration from the information furnished to me consists of 2 cellular antennas (Antel LPD-7907-4_3 or equivalent, 850 MHz) and 2 PCS antennas (Antel LPA-185080/8CF or equivalent, 1900 MHz) on each of three faces (total of 12 antennas) spaced 120 degrees apart (AZ 344/104/224) on the horizontal plane with a centerline of 151' above ground level and mechanical downtilt of 0-10 degrees on each face. Transmitting from these antennas will be a maximum of up to 8 cellular CDMA channels and up to 10 PCS CDMA channels per face. The proposed Verizon Wireless antennas will be pod-mounted on the top of the watertank approximately 6' centerline above the top of the watertank. No other cellular/PCS carriers are currently collocated on the structure.

The following assumptions are made for reasonable upper limit radiofrequency emissions from the proposed facility due to Verizon Wireless antennas alone:

- 1 cellular transmit antenna (LPD-7907-4_3) per face at 0-10 degrees mechanical downtilt
- 1 PCS transmit antenna (LPA-185080/8CF) per face at 0-10 degrees mechanical downtilt
- 8 cellular CDMA channels at 20 watts max power (per channel) before cable loss/antenna gain
- 10 PCS CDMA channels at 16 watts max power (per channel) before cable loss/antenna gain
- The facility would be at or near full capacity during busy hour

Using the far-field power density equations from FCC Bulletin OET 65, the power density at any given distance from the proposed antennas is equal to $0.359(ERP)/R^2$ where R is the distance to the point at which the exposure

is being calculated. This calculated power density assumes the location is in the main beam of the vertical pattern of the antenna. After making an adjustment for the reduction in power density due to the vertical pattern of the transmit antenna, the calculated ground level power density is at or below $1 \mu\text{W}/\text{cm}^2$ at any distance from the antenna system of Verizon Wireless. This calculation uses parameters greater than what they have defined as their initial and typical operating parameters for this facility.

The "B Band" cellular transmit frequencies (880-894 MHz), which Verizon Wireless is licensed by the FCC to operate, have an uncontrolled/general population maximum permissible exposure (MPE) FCC limit of $587 \mu\text{W}/\text{cm}^2$. The "C3/C4 Block" and "D Block" PCS transmit frequencies (1975-1985, 1945-1950 MHz), which Verizon Wireless is also licensed to operate, have an uncontrolled/general population MPE of $1000 \mu\text{W}/\text{cm}^2$ or $1 \text{ mW}/\text{cm}^2$. Therefore, the exposure at ground level at any distance from the structure would be substantially below 1 % of the FCC exposure limits due to Verizon Wireless antennas alone. The extremely low ground exposure levels are due to the elevated positions of the antennas on the structure and the low power which these systems operate.

From the standpoint of RF exposure, the presence of Verizon Wireless would not preclude the future addition of other tenants or licensees including emergency or other municipal services which benefit the public from collocation on this structure. There is a substantial margin of safety to allow for the addition of transmit antennas of other communications services. Keep in mind that continuous exposure at 100 % of standard is considered by the scientific community as just as safe as 1 % of standard since the exposure limits themselves contain a large margin of safety.

The International Commission on Non-Ionizing Radiation Protection (ICNIRP), which is an association under the International Radiation Protection Association (IRPA), established exposure limits or guidelines in 1998 similar to the FCC limits. The ICNIRP is a formally recognized non-government organization in non-ionizing radiation for the World Health Organization and the International Labour Office. While the ICNIRP has no jurisdiction over FCC licensees, the composite exposure of the proposed communications facility will be substantially below 1 % of the ICNIRP exposure limits.

In summary, the proposed communications facility will comply with all applicable exposure limits and guidelines adopted by the FCC governing human exposure to radiofrequency electromagnetic fields (FCC Bulletin OET 65). Federal law (FCC Rule Title 47 CFR 1.1307 and 1.1310) sets the national standard for compliance with electromagnetic field safety. The FCC exposure limits are based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP) and, over a wide range of frequencies, the exposure limits developed by the Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI). Thus, there is full compliance with the standards of the IRPA, FCC, IEEE, ANSI, and NCRP.

Respectfully,



Paul Dugan, P.E.
Registered Professional Engineer
Virginia License Number 036239



DECLARATION OF ENGINEER

Paul Dugan, P.E., declares and states that he is a graduate telecommunications consulting engineer (BSE/ME Widener University 1984/1991), whose qualifications are a matter of record with the Federal Communications Commission (FCC). His firm, Millennium Engineering, P.C., has been retained by Verizon Wireless to perform power density measurements or calculations for an existing or proposed communications facility and analyze the data for compliance with FCC exposure limits and guidelines for human exposure to radiofrequency electromagnetic fields.

Mr. Dugan also states that the calculations or measurements made in the evaluation were made by himself or his technical associates under his direct supervision, and the summary letter certification of FCC compliance associated with the foregoing document was made or prepared by him personally. Mr. Dugan is a registered professional engineer in the Jurisdictions of Pennsylvania, New Jersey, Delaware, Maryland, Virginia, New York, Connecticut, District of Columbia, and Puerto Rico with over 23 years of engineering experience. Mr. Dugan is also an active member of the Association of Federal Communications Consulting Engineers, the National Council of Examiners for Engineering, the National Society of Professionals Engineers, the Pennsylvania Society of Professional Engineers, and the Radio Club of America. Mr. Dugan further states that all facts and statements contained herein are true and accurate to the best of his own knowledge, except where stated to be in information or belief, and, as to those facts, he believes them to be true. He believes under penalty of perjury the foregoing is true and correct.



Paul Dugan, P.E.

Executed this the 14th day of November, 2007.

PAUL ALLEN DUGAN, P.E.
303 Valley Hunt Drive
Phoenixville, Pennsylvania 19460

Office: 610-495-0690
Fax: 610-495-0691
Mobile: 610-220-3820
Email: pauldugan@comcast.net
Web Page: www.millenniumengineering.net

EDUCATION: Widener University, Chester, Pennsylvania
Master of Business Administration, July 1991
Master of Science, Electrical Engineering, December 1988
Bachelor of Science, Electrical Engineering, May 1984

PROFESSIONAL ASSOCIATIONS: **Registered Professional Engineer** in the following jurisdictions:

Pennsylvania, License Number PE-045711-E
New Jersey, License Number GE41731
Maryland, License Number 24211
Delaware, License Number 11797
Virginia, License Number 36239
Connecticut, License Number 22566
New York, License Number 079144
District of Columbia, License Number PE-900355
Puerto Rico, License Number 18946

Full member of **The Association of Federal Communications Consulting Engineers**
(www.afcce.org) January 1999 to Present
Elected to serve on the Board of Directors for 2006-2007

Full member of **The National Society of Professional Engineers** (www.nspe.org) and the
Pennsylvania Society of Professional Engineers (www.pspe.org) June 2003 to Present
Currently serving as President on the Board of Directors of the Valley Forge Chapter and the South East
Region Vice-Chair for the "Professional Engineers in Private Practice" Executive Committee

Actively participate in **Chester County ARES/RACES Amateur Radio** (CCAR www.w3eoc.org)
which prepares and provides emergency backup communications for Chester County Department of
Emergency Services, March 2005 to Present

Full member of **The National Council of Examiners for Engineering**
(www.ncees.org) May 2001 to Present

Full Member of **The Radio Club of America**
(www.radio-club-of-america.org) December 2003 to present

PROFESSIONAL EXPERIENCE: Millennium Engineering, P.C., Phoenixville, Pennsylvania
Position: **President**, August 1999 to Present (www.millenniumengineering.net)

Verizon Wireless, Plymouth Meeting, Pennsylvania
Position: **Cellular RF System Design/Performance Engineer**, April 1990 to August 1999

Communications Test Design, Inc., West Chester, Pennsylvania
Position: **Electrical Engineer**, May 1984 to April 1990